

AMENDMENT TO THE CLAIMS

The following claim listing replaces all prior listings and versions of the claims:

LISTING OF CLAIMS

1. (Currently Amended) A semiconductor apparatus comprising:

a semiconductor chip including a power semiconductor device constructed by using a wide band gap semiconductor, the semiconductor chip having an upper surface and a lower surface opposite to the upper surface;

a first base material made of an electrically conductive material and electrically connected to a part of [[a]] the lower surface of said semiconductor chip;

a heat conducting member coming in contact with a part of [[an]] the upper surface of said semiconductor chip opposite to the lower surface and releasing heat directly from said semiconductor chip; and

an encapsulating material for encapsulating said semiconductor chip and said heat conducting member,

wherein the semiconductor apparatus further comprises a second base material made of a metal material and disposed on a part of said upper surface of said semiconductor chip,

wherein said power semiconductor device is a vertical element,

wherein a part of said first base material is extruded outside said encapsulating material and works as a first external connection terminal,

wherein a part of said second base material is extruded outside said encapsulating material and works as a second external connection terminal,

wherein a first intermediate member made of an electrically conductive material and a second intermediate member made of a material having lower heat conductivity than said first

intermediate member are provided under the lower surface of said semiconductor chip and between said first base material and said semiconductor chip,

wherein the first intermediate member and the second intermediate member touch the lower surface of the semiconductor chip and the first base material, and an area where the second intermediate member touches the lower surface of the semiconductor chip is larger than an area where the first intermediate member touches the lower surface of the semiconductor chip, and

wherein the semiconductor chip and the first base material are electrically connected with each other through the first intermediate member, and

wherein an ohmic electrode is disposed on an entire surface of the lower surface of the semiconductor chip.

2. (Original) The semiconductor apparatus of Claim 1,

wherein said power semiconductor device has a region where a current passes at a current density of 50 A/cm^2 or more.

3. (Original) The semiconductor apparatus of Claim 1 or 2,

wherein said encapsulating material is made of a resin or glass, and said heat conducting member is exposed from said encapsulating material.

4. (Original) The semiconductor apparatus of Claim 3, further comprising a radiation fin that is in contact with said heat conducting member and is extruded outside said encapsulating material.

5. (Withdrawn) The semiconductor apparatus of Claim 1 or 2, further comprising a film for covering said encapsulating material.

6. (Withdrawn) The semiconductor apparatus of Claim 5, further comprising a radiation fin opposing said heat conducting member with said film sandwiched therebetween.

7-11. (Cancelled)

12. (Withdrawn) A semiconductor apparatus comprising:

a semiconductor chip including a power semiconductor device constructed by using a wide band gap semiconductor;

a base material made of an electrically conductive material and connected to a part of a face of said semiconductor chip;

a heat conducting member in contact with a part of the face of said semiconductor chip;

a vessel in contact with said heat conducting member and encapsulating said semiconductor chip, said base material and said heat conducting member; and

an external connection terminal electrically connected to said base material and extruded from said vessel.

13. (Withdrawn) The semiconductor apparatus of Claim 12,

wherein a region around said semiconductor chip, said base material and said heat conducting member within said vessel is filled with glass, a resin, an inert gas or a gas reduced in pressure.

14. (Withdrawn) The semiconductor apparatus of Claim 12 or 13, further comprising a radiation fin opposing said heat conducting member with a part of said vessel sandwiched therebetween.

15-16. (Cancelled)

17. (Currently Amended) The semiconductor apparatus of claim 1, further comprising another semiconductor chip that is stacked on said semiconductor chip ~~and a part of which is connected to said first base material.~~

18. (Previously Presented) The semiconductor apparatus of claim 1, wherein said first external connection terminal of said first base material is configured to be mounted on a print wiring board.

19. (Previously Presented) The semiconductor apparatus of claim 1, wherein said wide band gap semiconductor is SiC.

20. (New) The semiconductor apparatus of claim 1, wherein the ohmic electrode comprises nickel.